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(54) **CONTINUOUS PAPER FEEDER FOR BOARD**

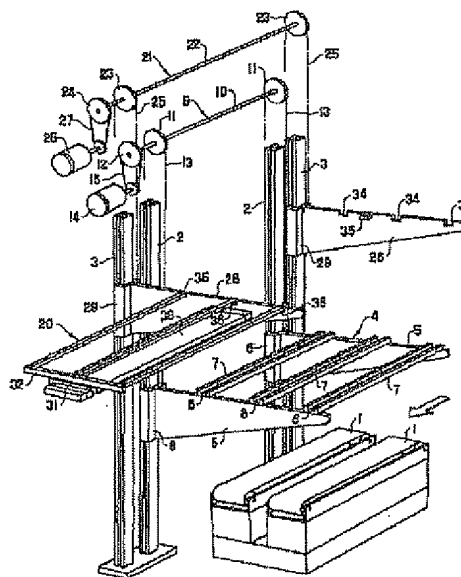
(57) Abstract:

PROBLEM TO BE SOLVED: To improve workability by eliminating a time loss causing such as interruption for supplying a board, in a continuous paper feeder for a board provided in a printing machine, window sticker, etc.

SOLUTION: In a continuous paper feeder for boards loading a board polymer 40 formed by piling many sheets of boards in a lift base 4 so as to almost fixedly hold a height of the board in an upper end part by lifting the lift base 4 in accordance with successively feeding the upper end part board of the board polymer, a sublift base 20 capable of lift moving independently of the lift base 4 is provided, the sublift base 20 is formed by providing a plurality of support bars 33 in a horizontally overhung condition in an overhung base part 32 provided so as to horizontally advance/retract by an actuator 30. A groove 8, which can insert the support bar 33 from the sideward by operating the actuator 33, is formed in an upper surface of the lift base 4, by supporting the board polymer 40 loaded on the lift base 4 to the support bar 33, while holding the board polymer to a required height, the lift base 4 is lowered down, a

new board polymer cap be loaded on the lift base 4.

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Ref 1

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CLAIMS

[Claim(s)]

[Claim 1] a boarding ramp -- many -- a paperboard polymer which becomes in piles about several sheets of paperboards is laid, and it feeds with a paperboard of this paperboard polymer sequentially from a thing of an upper bed part -- it is alike, and follow and this boarding ramp goes up -- height of a paperboard of an upper bed part -- abbreviated ** -- in a continuous paper feed device of the paperboards held uniformly, Provide a subboarding ramp which may move vertically independently with said boarding ramp, and this subboarding ramp provides two or more bearing bars in a support-at-one-end base provided so that forward/backward moving might be horizontally carried out with an actuator in the shape of a level support at one end, A slot where said boarding ramp can insert this bearing bar in the upper surface from the side by the operation of said actuator is formed, A continuous paper feed device of the paperboards characterized by dropping this boarding ramp and enabling it to lay a new tray paper polymer on this boarding ramp, holding this paperboard polymer to desired height by making this bearing bar support a paperboard polymer laid on this boarding ramp.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the continuous paper feed device which feeds with the paperboards cut by the size fixed to a sheet printing machine, a punching machine, a **** machine, etc. continuously.

[0002]

[Description of the Prior Art] On a boarding ramp, several many sheets of the paper (henceforth a paperboard) are piled up, the device which feeds into a printing machine the paper cut by the fixed size one after another lays them, and he is trying to feed the paperboard sequentially from the thing of an upper bed part by transportation means, such as a vacuum suction pad or a rubber roller, as everyone knows, and a paperboard is fed — it is alike, and follow and a boarding ramp addressing — goes up a few — the height of the paperboard of an upper bed part — always — abbreviated ** — he is trying to be held uniformly

[0003]

[Problem(s) to be Solved by the Invention] However, after once being stopped, and feeding of the paperboard dropping this boarding ramp and carrying a new tray paper polymer on this boarding ramp, this boarding ramp was re-raised, and when the paperboard on a boarding ramp was exhausted in the continuous paper feed device of the conventional paperboards, if it was ****, there was nothing. For this reason, it was in the situation where the work of printing etc. is interrupted in the meantime.

[0004] Then, this invention tends to lose time loss which interrupts work for such paperboard supply, and tends to provide the continuous paper feed device of the paperboards which raise workability.

[0005]

[Means for Solving the Problem] Therefore, a continuous paper feed device of the paperboards concerning this invention, a boarding ramp — many — a paperboard polymer which becomes in piles about several sheets of paperboards is laid, and it feeds with a paperboard of this paperboard polymer sequentially from a thing of an upper bed part — it is alike, and follow and this boarding ramp goes up — height of a paperboard of an upper bed part — abbreviated ** — in a continuous paper feed device of the paperboards held uniformly, Provide a subboarding ramp which may move vertically independently with said boarding ramp, and this subboarding ramp provides two or more bearing bars in a support-at-one-end base provided so that forward/backward moving might be horizontally carried out with an actuator in the shape of a level support at one end, A slot where said boarding ramp can insert this bearing bar in the upper surface from the side by the operation of said actuator is formed. Holding this paperboard polymer to desired height by making this bearing bar support a paperboard polymer laid on this boarding ramp, this boarding ramp is dropped and it enabled it to lay a new tray paper polymer on this boarding ramp.

[0006]

[Embodiment of the Invention] Next, an example of an embodiment of the invention is explained according to a drawing. The perspective view showed the important section of the continuous

paper feed device of these paperboards to drawing 1, it was shown in that horizontal sectional view at drawing 2, and that operating state was shown in order below in drawing 3. Among a figure, in order that 1 and 1 may convey a paperboard polymer from the direction of an arrow, the parallel conveyor belt of the couple provided at a level with a floor, the guide pole of the couple which was established at right angles to the 1 side of this conveyor belt as for 2 and 2, and 3 and 3 are the guide poles of these guide poles 2 and 2 established further outside.

[0007]4 is the boarding ramp which can move vertically vertically and which was provided like along with the guide poles 2 and 2. This boarding ramp 4 is inserted on the periphery of the guide poles 2 and 2 slidably [the bases 6 and 6 of the pieces 5 and 5 of a shelf bracket of a couple]. And it has adhered so that it may have only an interval to which said conveyor belts 1 and 1 can intervene the three width board-like support members 7 between them between these pieces 5 and 5 of a shelf bracket. And the slot 8 which can insert loosely the bearing bar mentioned later is formed in the upper surface, and this support member 7 is making the cross section concave. 9 is a drive of the boarding ramp 4 which consists of the sprocket shaft 10, the sprockets 11 and 11, the sprocket 12, Qian 13 and 13, the motor 14, and Qian 15. The pendant of the boarding ramp 4 is carried out by Qian 13 and 13, and if the sprocket shaft 10 rotates by the drive of the motor 14, it is constituted so that the boarding ramp 4 by which the pendant was carried out to Qian 13 and 13 may move vertically and it can stop in desired height.

[0008]Along with the guide poles 2 and 2, the subboarding ramp which can move vertically independently and which was provided like, and 21 are the drive in said boarding ramp 4 20, This drive 21 consists of the sprocket shaft 22, the sprockets 23 and 23, the sprocket 24, Qian 25 and 25, the motor 26, and Qian 27 like said drive 9. If the sprocket shaft 22 rotates by the motor 26, the subboarding ramp 20 by which the pendant was carried out to Qian 25 and 25 can move vertically, and this subboarding ramp 20 can be stopped in desired height.

[0009]In the subboarding ramp 20, the bases 29 and 29 of the pieces 28 and 28 of a shelf bracket of a couple are slidably inserted into the periphery of the guide poles 2 and 2, respectively. The actuator slack rodless cylinder 30 adhered to the outside of the piece 28 of a shelf bracket of one of these horizontally, the width board-like support-at-one-end base 32 adhered to the operating piece 31 of this rodless cylinder 30, and the three prismatic bearing bars 33 are formed in this support-at-one-end base 32 in the shape of a level support at one end. 36 is the notch formed in the upper limb of the piece 28 of a shelf bracket in order to **** the tip part of the bearing bar 33. The sensor 35 by which the notch 34 to which this bearing bar 33 may fit loosely into an upper limb is formed, and the piece 28 of a shelf bracket of another side detects a motion of the bearing bar 33 to the 1 side of this notch 34 is formed. This each bearing bar 33 has adhered to the support-at-one-end base 32 so that it can insert in the slot 8 of each of said support member 7 and may have the same predetermined interval as the support member 7.

[0010]For this reason, after carrying in the paperboard polymer 40 on the conveyor belt 1 and 1 where the boarding ramp 4 is dropped as shown in drawing 3 now, As this boarding ramp 4 is raised and the paperboard of the upper bed part of this paperboard polymer 40 is fed by the printing machine etc., and shown in drawing 4, this boarding ramp 4 is raised to the height of the subboarding ramp 20, and is stopped. And the rodless cylinder 30 is operated, the bearing bar 33 is inserted all over the slot 8 from the side of the boarding ramp 4, and as shown in drawing 5, the tip of this bearing bar 33 is poked during the notch 34 of the piece 28 of a shelf bracket. And this subboarding ramp 20 is raised, and this subboarding ramp 20 is further raised as the paperboard polymer 40 is made to support on the bearing bar 33 as shown in drawing 6 and the thing of the upper bed part of this paperboard polymer 40 is fed by the printing machine etc. In this way, while making the subboarding ramp 20 support the paperboard polymer 40, as shown in drawing 7, the boarding ramp 4 is dropped, As shown in drawing 8, after carrying in the new tray paper polymer 40 on the conveyor belt 1 and 1, As the thing of the upper bed part of this paperboard polymer 40 is polymerized in the thing of the lower end part of the paperboard polymer 40 currently supported by the subboarding ramp 20 as this boarding ramp 4 is raised and it was shown in drawing 9, the rodless cylinder 30 is operated for the contraries and it was shown in drawing 10, the bearing bar 33 is drawn out from between both paperboards. The

polymerization of the above-mentioned paperboard is detectable by this bearing bar's 33 moving by the load of the paperboard polymer 40 added to the bearing bar 33 becoming light for a while up, and detecting it by the sensor 35. And this subboarding ramp 20 is dropped to a predetermined position in readiness, as shown in drawing 11. And the bearing bar 33 of this subboarding ramp 20 is inserted all over the slot 8 of this boarding ramp 4, as it waits for the boarding ramp 4 to go up to the height of the subboarding ramp 20 as the paperboard of an upper bed part is fed, the rodless cylinder 30 is operated and it was again shown in drawing 5. The new tray paper polymer 40 is supported on this bearing bar 33. And continuation feeding is carried out, without dropping the boarding ramp 4, as again shown in drawing 6 and drawing 7, and interrupting feeding of a paperboard by repeating each of this process similarly, as shown in drawing 8 - drawing 11 below. As shown in drawing 10, in order that it may face drawing out the bearing bar 33 and the paperboard polymer 40 may not carry out transverse movement, the check plate (not shown) which projects up from the interval of each of this bearing bar 33 in the inner surface of the piece 28 of a shelf bracket may be formed.

[0011]

[Effect of the Invention] Thus, since it can carry out continuously thoroughly according to the continuous paper feed device of the paperboards concerning this invention, without interrupting feeding of paperboards, there is a useful effect of being able to make it operating continuously, without interrupting the machinery which printing, punching, ***, etc. follow, and raising workability.

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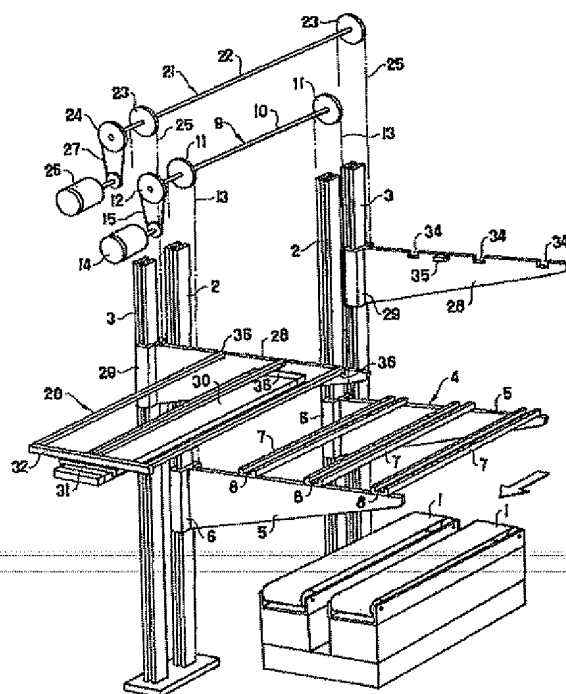
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(54) 【発明の名称】 板紙類の連続給紙装置

(57) 【要約】

【課題】 印刷機、窓貼機等に設けられる板紙類の連続給紙装置であって、板紙補給のために作業を中断させるような時間的ロスをなくし、作業性を向上させる。

【解決手段】 昇降台4に多数枚の板紙を重ねてなる板紙重合体40が載置され、該板紙重合体の板紙を上端部のものから順に給送するに従い該昇降台が上昇し、上端部の板紙の高さが略々一定に保持されるようにした板紙類の連続給紙装置において、前記昇降台4とは独立して昇降動し得る副昇降台20を設け、該副昇降台はアクチュエータ30により水平に進退動するように設けられた片持基部32に複数本の支持棒33を水平片持状に設け、前記昇降台4の上面に前記アクチュエータ30の作動により該支持棒33を側方より差し込み得る溝8が形成され、該昇降台4上に載置された板紙重合体40を該支持棒33に支持させることにより該板紙重合体を所要高さに保持しつつ該昇降台4を下降させ新たな板紙重合体を該昇降台上に載置できるようにした。



【特許請求の範囲】

【請求項1】 昇降台に多数枚の板紙を重ねてなる板紙重合体が載置され、該板紙重合体の板紙を上端部のものから順に給送するに従い該昇降台が上昇し上端部の板紙の高さが略々一定に保持されるようにした板紙類の連続給紙装置において、前記昇降台とは独立して昇降動し得る副昇降台を設け、該副昇降台はアクチュエータにより水平に進退動するように設けられた片持基部に複数本の支持棒を水平片持状に設けてなり、前記昇降台は上面に前記アクチュエータの作動により該支持棒を側方より差し込み得る溝が形成され、該昇降台上に載置された板紙重合体を該支持棒に支持させることにより該板紙重合体を所要高さに保持しつつ該昇降台を下降させ新たな板紙重合体を該昇降台上に載置できるようにしたことを特徴とする板紙類の連続給紙装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、枚葉印刷機、打抜機、窓貼機等に一定の大きさに切断された板紙類を連続的に給送する連続給紙装置に関するものである。

【0002】

【従来の技術】一定の大きさに切断された用紙を例えば印刷機に次々と送給する装置は、周知のように、昇降台上にその用紙等（以下、板紙という）を多数枚重ねて載置し、その板紙を真空吸引パッドまたはゴムローラ等の搬送手段によって上端部のものから順に送給するようにしている。そして板紙が送給されるに従い昇降台が少し宛上昇し上端部の板紙の高さが常に略々一定に保持されるようにしている。

【0003】

【発明が解決しようとする課題】しかし従来の板紙類の連続給紙装置では、昇降台上の板紙がなくなると、板紙の送給がいったん停止され、該昇降台を下降させ新たな板紙重合体を該昇降台上に載せてから該昇降台を再上昇させねばならなかった。このためその間に印刷等の作業が中断される状況であった。

【0004】そこで本発明は、このような板紙補給のために作業を中断させるような時間的ロスをなくし、作業性を向上させる板紙類の連続給紙装置を提供しようとするものである。

【0005】

【課題を解決するための手段】そのために本発明に係る板紙類の連続給紙装置は、昇降台に多数枚の板紙を重ねてなる板紙重合体が載置され、該板紙重合体の板紙を上端部のものから順に給送するに従い該昇降台が上昇し上端部の板紙の高さが略々一定に保持されるようにした板紙類の連続給紙装置において、前記昇降台とは独立して昇降動し得る副昇降台を設け、該副昇降台はアクチュエータにより水平に進退動するように設けられた片持基部に複数本の支持棒を水平片持状に設けてなり、前記昇降

台は上面に前記アクチュエータの作動により該支持棒を側方より差し込み得る溝が形成され、該昇降台上に載置された板紙重合体を該支持棒に支持させることにより該板紙重合体を所要高さに保持しつつ該昇降台を下降させ新たな板紙重合体を該昇降台上に載置できるようにしたことを特徴とする。

【0006】

【発明の実施の形態】次に本発明の実施の形態の一例を図面に従い説明する。図1にこの板紙類の連続給紙装置の要部を斜視図にて示し、図2にその水平断面図、図3以下にその作動状態を順に示した。図中、1、1は板紙重合体を矢印の方向より搬送するためフロワに水平に設けられた一対の平行なベルトコンベヤ、2、2は該ベルトコンベヤの一侧に垂直に樹立された一対のガイド柱、3、3は該ガイド柱2、2のさらに外側に樹立されたガイド柱である。

【0007】4はガイド柱2、2に沿い垂直に昇降動可能なるように設けられた昇降台である。該昇降台4は一対の棚受片5、5の基部6、6がガイド柱2、2の外周に摺動可能に貫挿されている。そして該棚受片5、5間に幅板状の3本の支持部材7を前記ベルトコンベヤ1、1がその間に介入できるだけの間隔を有するように固着している。そして該支持部材7は後述する支持棒を遊挿し得る溝8が上面に形成され横断面凹形をなしている。9はスプロケット軸10とスプロケット11、11とスプロケット12とチエン13、13とモータ14とチエン15とからなる昇降台4の駆動装置で、チエン13、13により昇降台4が吊下され、モータ14の駆動によりスプロケット軸10が回転するとチエン13、13に吊下された昇降台4が昇降動し所望の高さで停止できるように構成されている。

【0008】20はガイド柱2、2に沿い前記昇降台4とは独立して昇降動可能なるように設けられた副昇降台、21はその駆動装置で、該駆動装置21は前記駆動装置9と同様にスプロケット軸22とスプロケット23、23とスプロケット24とチエン25、25とモータ26とチエン27とからなり、モータ26によりスプロケット軸22が回転するとチエン25、25に吊下された副昇降台20が昇降動し所望の高さで該副昇降台20を停止させることができる。

【0009】副昇降台20は一対の棚受片28、28の基部29、29が夫々ガイド柱2、2の外周に摺動可能に貫挿され、その一方の棚受片28の外側にアクチュエータたるロッドレスシリンダ30が水平に固着され、該ロッドレスシリンダ30の作動片31に幅板状の片持基部32が固着され、該片持基部32に3本の角柱状の支持棒33を水平片持状に設けている。なお36は支持棒33の先端部を受支するため棚受片28の上縁に形成された切欠である。また他方の棚受片28は上縁に該支持棒33が遊嵌し得る切欠34が形成され、該切欠34の

一側には支持棒33の動きを検出するセンサ35が設けられている。なお該各支持棒33は前記各支持部材7の溝8に差し込み得るように支持部材7と同じ所定の間隔を有するように片持基部32に固着されている。

【0010】このため、いま図3に示したように、昇降台4を下降させた状態にてベルトコンベヤ1、1上に板紙重合体40を搬入した後、該昇降台4を上昇させ、該板紙重合体40の上端部の板紙が印刷機等に送給されるに従い図4に示したように該昇降台4を副昇降台20の高さまで上昇させ停止させる。そしてロッドレスシリンダ30を作動させ支持棒33を昇降台4の側方より溝8中に差し込み、図5に示したように該支持棒33の先端を棚受片28の切欠34中まで突き込む。そして該副昇降台20を上昇させ、図6に示したように支持棒33上に板紙重合体40を支持させると共に該板紙重合体40の上端部のものが印刷機等に送給されるに従い該副昇降台20をさらに上昇させる。こうして板紙重合体40を副昇降台20に支持させている間に図7に示したように昇降台4を下降させ、図8に示したようにベルトコンベヤ1、1上に新たな板紙重合体40を搬入した後、該昇降台4を上昇させ図9に示したように該板紙重合体40の上端部のものを副昇降台20に支持されている板紙重合体40の下端部のものに重合させ、ロッドレスシリンダ30を反対向に作動させて図10に示したように支持棒33を両板紙の間より引き抜く。なお上記板紙の重合は支持棒33に加わっていた板紙重合体40の荷重が軽くなることで該支持棒33が上方に少し動きそれがセンサ35により検出されることにより検知できる。そして該副昇降台20を図11に示したように所定の待機位置まで下降させる。そして上端部の板紙が送給されるに従い昇降台4が副昇降台20の高さまで上昇して来るのを待つてロッドレスシリンダ30を作動させ該副昇降台20の支持棒33を再び図5に示したように該昇降台4の溝8中に差し込み、該支持棒33上に新たな板紙重合体40が支持されるようにする。そして再び図6、図7に示したように昇降台4を下降させ、以下図8～図11に示したように同様にこの各過程を繰り返すことにより、板紙の送給を中断させることなく連続送給する。なお、図10に示したように支持棒33を引き抜くに際し

て板紙重合体40が横移動しないようにするため棚受片28の内面に該各支持棒33の間隔より上方に突出する止め板（図示せず）を設けてもよい。

【0011】

【発明の効果】このように本発明に係る板紙類の連続給紙装置によれば、板紙類の送給を中断させることなく完全に連続的に行い得るようになるので、印刷や打抜、窓貼等の後続する機械を中断させることなく連続的に作動させることができ、作業性を向上させる有益な効果がある。

【図面の簡単な説明】

【図1】本発明に係る板紙類の連続給紙装置の要部を示した斜視図。

【図2】図1の水平断面図。

【図3】本発明の作動状態の概略を示した正面図。

【図4】本発明の作動状態の概略を示した正面図。

【図5】本発明の作動状態の概略を示した正面図。

【図6】本発明の作動状態の概略を示した正面図。

【図7】本発明の作動状態の概略を示した正面図。

【図8】本発明の作動状態の概略を示した正面図。

【図9】本発明の作動状態の概略を示した正面図。

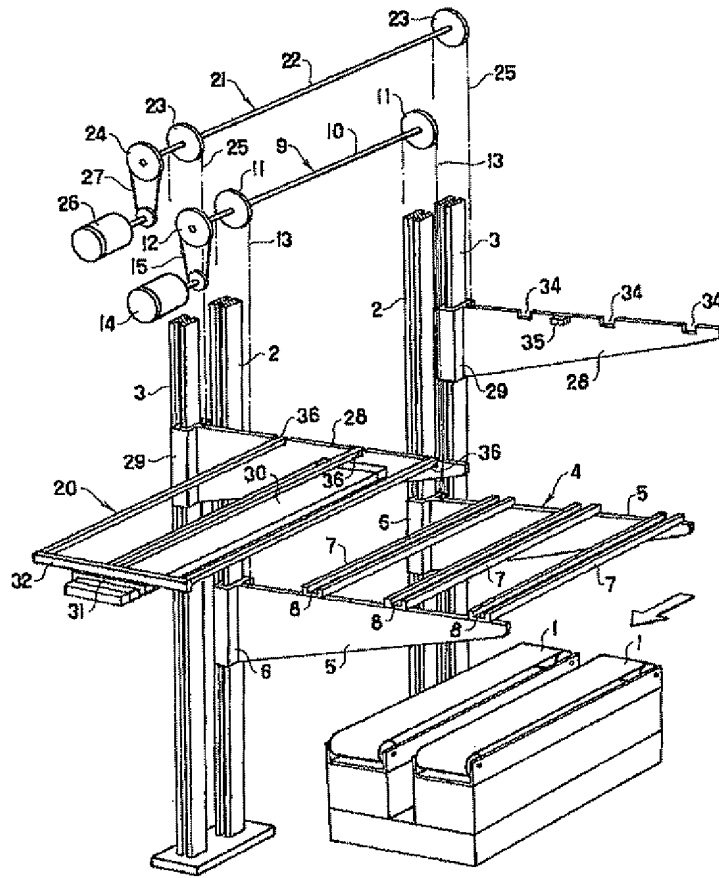
【図10】本発明の作動状態の概略を示した正面図。

【図11】本発明の作動状態の概略を示した正面図。

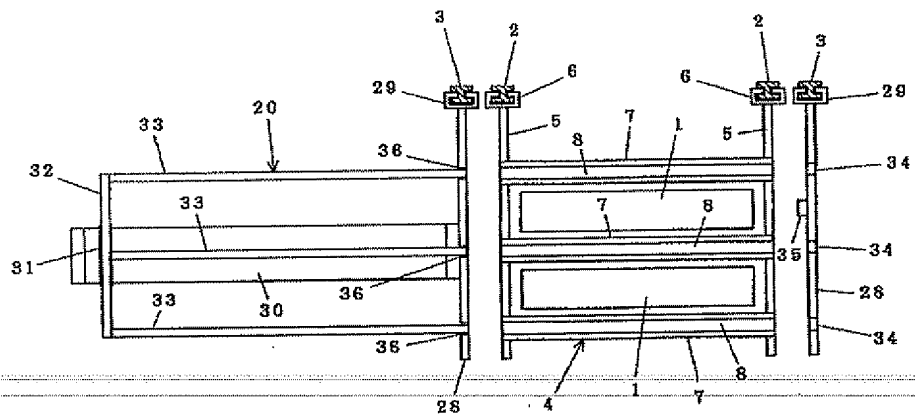
【符号の説明】

2	ガイド柱
3	ガイド柱
4	昇降台
5	棚受片
7	支持部材
8	溝
9	駆動装置
20	副昇降台
21	駆動装置
28	棚受片
30	ロッドレスシリンダ
32	片持基部
33	支持棒
34	切欠
40	板紙重合体

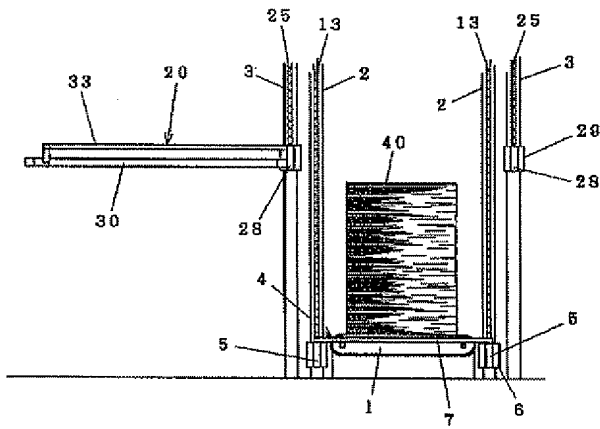
【図 1】



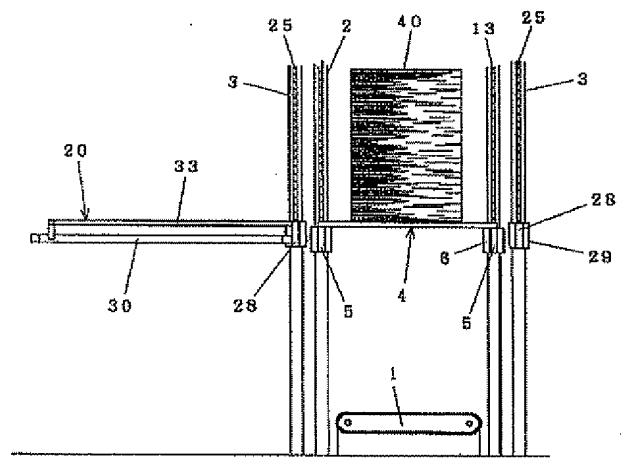
【図 2】



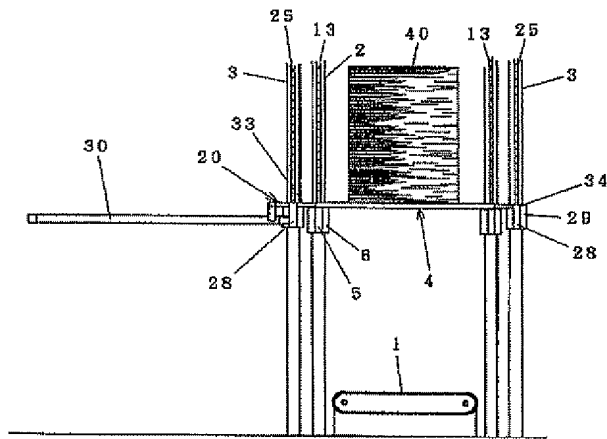
【图3】



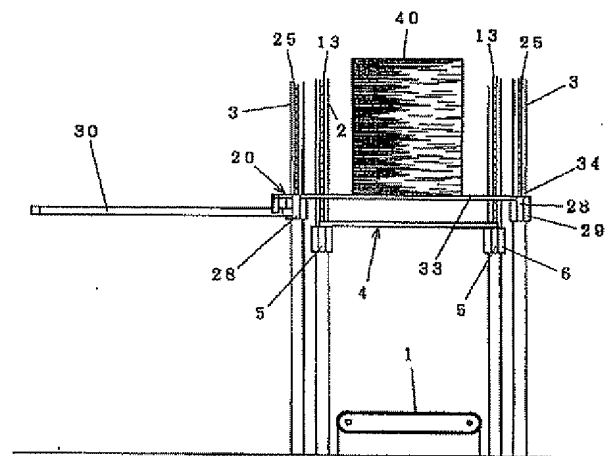
【图4】



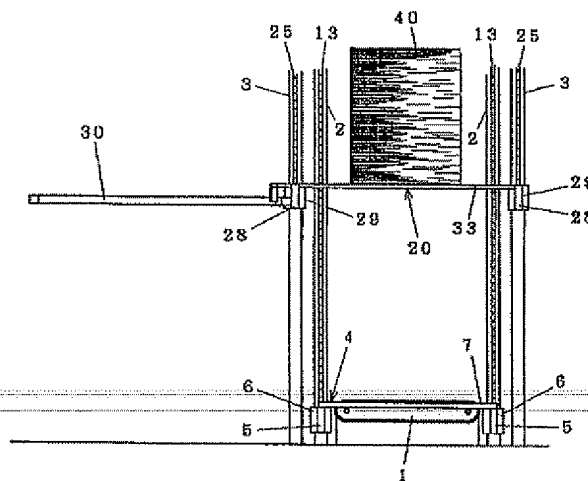
【图5】



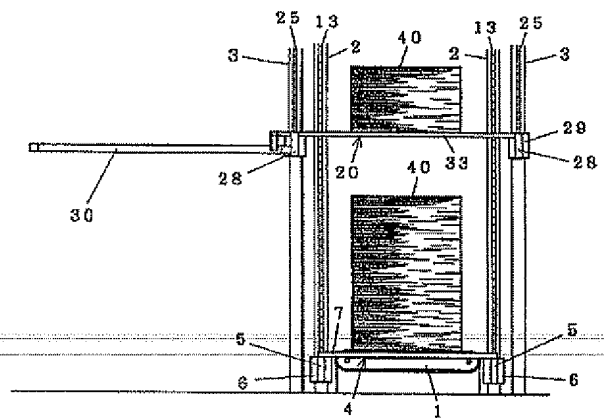
【图6】



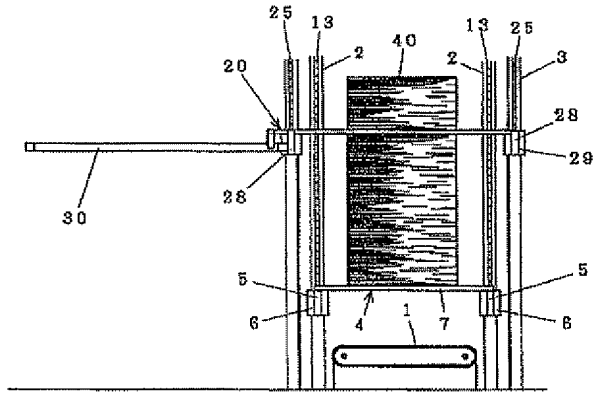
【图7】



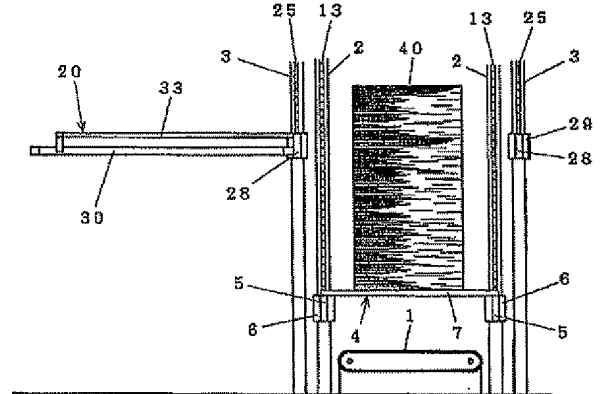
【图8】



【図9】



【図10】



【図11】

